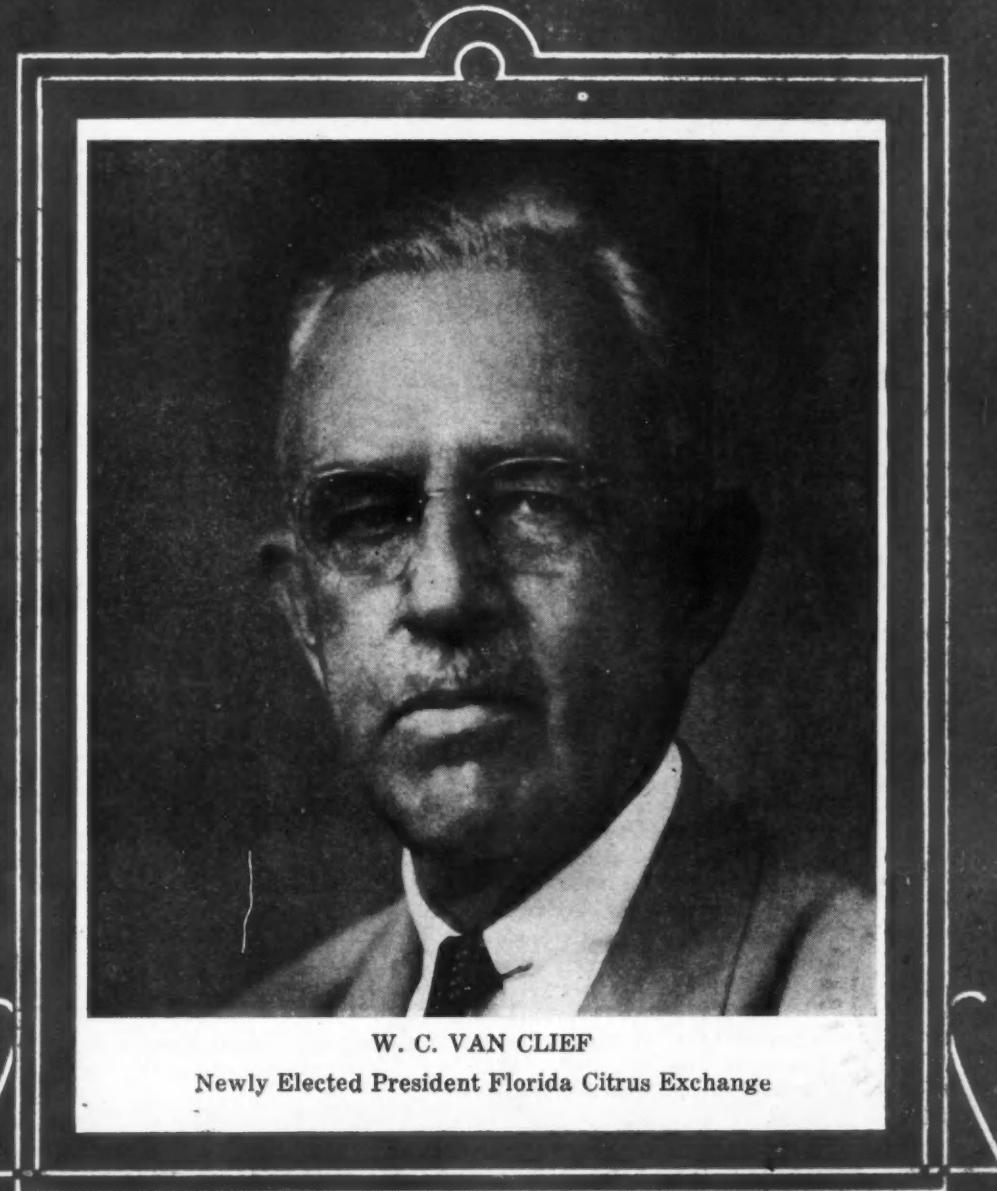


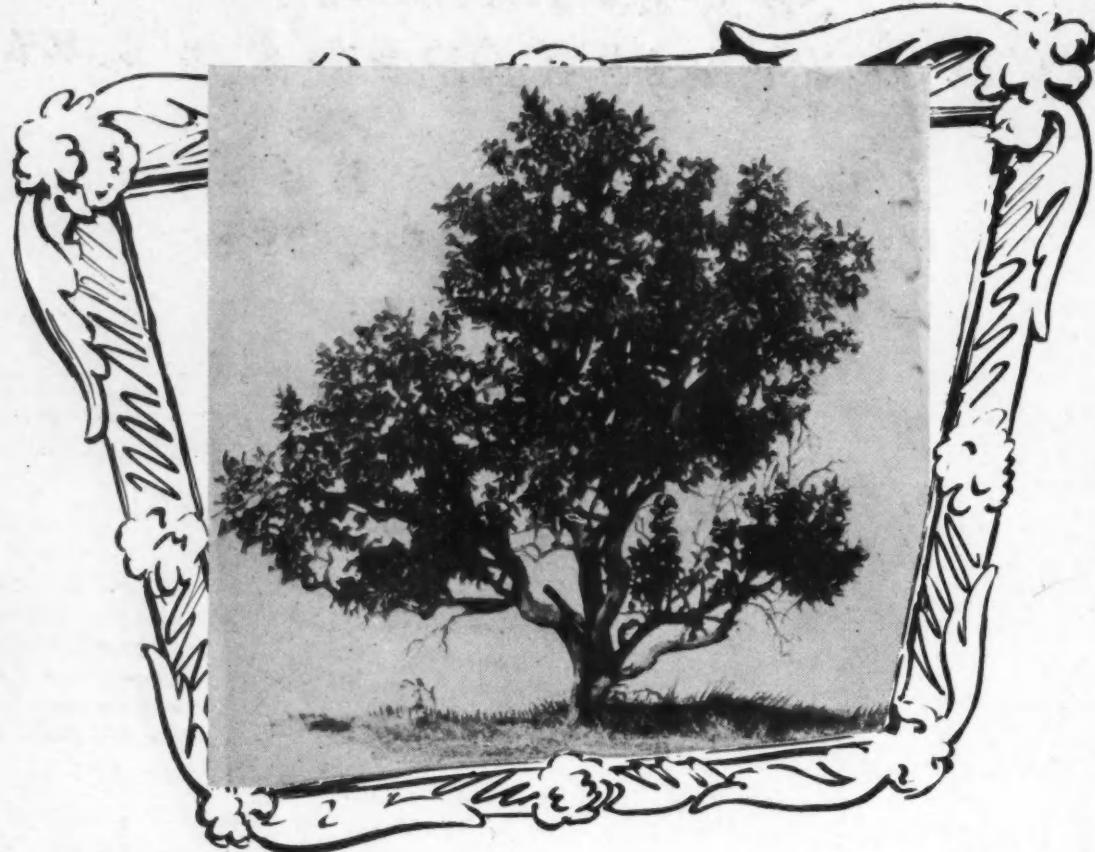
# The Citrus Industry



W. C. VAN CLIEF

Newly Elected President Florida Citrus Exchange

LITERACY FLA. AGRICULTURE CO-OP. 2001



## Portrait of a Wallflower!

• This is a tree nobody loves, its owner least of all. The fruit it bears is slow to develop and is rarely salable. There is no profit in it. It is not the tree's fault. It is simply starving to death.

Fortunately there are few trees as badly off as this one in the citrus groves of Florida, today. Back in 1932-33 it would have had lots of company. For up until then the value of the trace elements—magnesium, manganese, copper, zinc, etc.—to tree health had not yet been demonstrated. Less than 30 million boxes were produced that season.

Thanks, however, to first-class scientific investigation, the worth of the trace

elements, combined with the primary elements—nitrogen, phosphorous, and potash have been proved conclusively. In 1945-46, the crop was 86 million boxes and last season it was even better!

For over 53 years, Ideal Fertilizers have been the favorite of Florida growers. They are made to suit the Florida soils and Florida growing conditions. The trace elements—with the primary ingredients are included in the carefully blended formulae.

Combine your IDEAL fertilizing program with highly effective FASCO sprays and insecticides.



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Feed the Soil to Fatten Your Purse

WILSON & TOOMER FERTILIZER COMPANY, JACKSONVILLE, FLORIDA

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**AGRICULTURAL  
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 Recommended for such crops as melons, squash, cucumber and tomatoes.

**DDTol-50% DDT Wettable Powder**  
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**DDTol-25% DDT Emulsifiable Concentrate**  
 For nearly all crop uses Ideally suited for application by airplane or in concentrated spraying equipment.

**DDTol-50% DDT Dust Concentrate**  
 Primarily intended for use by commercial dust blenders. Suitable for general dusting.

**DDTol-5% DDT Dust**  
 Ready to use dust Not recommended for cucurbits

**DDTol-3% DDT Xylene Solution**  
 For use in airplane application for mosquito control

**Pestroy 25% DDT Emulsifiable Concentrate**  
 For use on live stock and farm buildings

**Agricultural Weed-No-More**  
 The original butyl ester of 2,4-D  
 For weed control in pastures, corn, rice, sorghum, small grains and sugar cane

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 Not recommended for cucurbits For the control of fruit diseases and blue mold in tobacco seed beds

**Karbam White-Wettable Powder**  
 For control of many diseases on truck crops

**Chlor-Mix-Wettable Powder**  
 Contains 40% by weight of Chlordane  
 Mix with water for a spray-blend with inert for a dust

**Chlor-Spra-Water Mixable**  
 Contains 42% chlordane Suitable for airplane application or ground spraying

**Arsenate of Lead**  
 Use as a wet spray or dust  
**Arsenate of Calcium**  
 A low price insecticide  
**Paris Green**  
 Noted for high arsenic content

**Fungi-Borbs**  
 Neutral Bordeaux mixture  
**Basi-Cop**  
 All purpose copper fungicide

**Roto-Dust**  
 Ready to use 0.75% Rotenone dust for control of truck crop insects and live stock grubs  
**S-W Spreader**  
 A pure Linseed Oil spreader provides a smooth film on leaf surfaces

**Pruning Compound**  
 Ready to apply antiseptic tree wound dressing  
**Dry Lime Sulfur**  
 Excellent physical properties Exceptional degree of safety to foliage

**Mulsoid Wettable Sulfur**  
 For use in "wet sprays" on fruit, vegetables, citrus, etc. See specific crop recommendations  
**Floridust Dusting Sulfur**  
 Use as dust on citrus and vegetables and as diluent for various insecticides  
**Floridoll**  
 Oil emulsion for proper oil deposit

**Iso-Hex 5% Gamma Wettable Powder**  
 Use in "wet" spray control of live stock pests and truck crop insects

**Iso-Hex 5% and 10% Gamma Dust Concentrate**  
 Use as dusts for control of truck crops and soil insects

**Chlor-Pheen 40% Dust Concentrate**  
 For control of grasshopper and all cotton and tobacco insects  
**Chlor-Pheen 45% Emulsifiable Concentrate**

Use as spray for control of grasshoppers cotton and tobacco insects. Especially designed for low-gallonage spraying

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Today finds the Chemist and the Agriculturist true partners in the job of providing food for a hungry world. The Sherwin-Williams Company has long recognized the importance of this field, and through its gigantic research organization has pioneered many important agricultural aids.

Throughout the country's fruit orchards, citrus groves, truck gardens, dairies and grain fields, you will find S. W. chemical products winning the fight over our insect, plant disease and weed enemies.

Sherwin-Williams Agricultural Chemical Products — being products of one of the world's largest manufacturers of insecticides and fungicides — can be relied upon for quality, uniformity, and — what is vitally important to you — availability.

For complete, specific crop recommendations, consult the special leaflets prepared for each crop. These leaflets may be obtained from your dealer, or by writing directly to —



**THE SHERWIN-WILLIAMS CO.**

AGRICULTURAL CHEMICALS DIVISION

CLEVELAND, OHIO

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PROTECTING THE FOOD CROP OF AMERICA



Photograph Taken in Lake Garfield Nurseries, November, 1947

## UNFINISHED BUSINESS

Yes, we have TREES, Good Trees, and we have many orders brought over from last spring, that we were unable to fill, but will fill this winter and spring. We very greatly appreciate the patience our customers have shown in waiting for LAKE GARFIELD TREES.

## NEW BUSINESS

In addition we have several thousand trees that are not sold. Our stock sheet is, of course, not complete in all varieties and sizes, but we invite you to submit your requirements, and we will let you know if we can fill your order, or how near we can come to it.

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CITRUS TREES EXCLUSIVELY

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North of Postoffice

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One of Our Groves, November 1947



Publication office at Bartow, Florida. Entered as second class matter February 16, 1920, at the post office at Tampa, Florida, under the act of March 3, 1879. Entered as second class matter June 19, 1933, at the post office at Bartow, Florida, under act of March 3, 1879.

## Citrus Experiment Station Celebrates Completion of Expansion Program

Open house November 12 celebrated the completion of the new office building and packinghouse and canning plant at the Citrus Experiment Station, Lake Alfred. Around 250 interested growers and others were present to inspect the property, partake of citrus juices and barbecue and hear a brief speaking program.

The affair was arranged by the Citrus Liaison Committee, headed by W. W. Giddings of Winter Haven. Dr. A. F. Camp and other staff members of the Citrus Station were hosts to the group and showed visitors through the new buildings and groves. Visitors were enthusiastic over the progress made at the station, which is now the only one in the country equipped to conduct research on all three principal phases of citrus work—production, packing and products of citrus fruits.

Dr. Camp said the packinghouse was used in research last year, but that the new experimental citrus canning plant is being placed in operation this season for the first time.

Thomas W. Bryant, Lakeland, member of the State Board of Control, commended the Station workers for their contributions to the progress of the industry and the growers for their acceptance of findings and their cooperation in

DR. L. O. GRATZ  
Assistant Director, Florida Experiment Station

developing a sound citrus program for the state.

A. M. Tilden, Winter Haven, recalled experiences as a member of the committee which helped raise funds to establish the Station in 1918 and 1919.

The State Legislature of 1917 passed an act making it possible to establish a branch experiment station for the particular study of citrus problems, and specified that such a station could not be established until lands, groves, monies "and other things of value" to the extent of \$10,000 which could be utilized in conducting the investigations should be raised and donated to the state.

The committee to raise the funds consisted of S. F. Poole, J. A. Snively, J. H. Ross, H. W. Snell, L. L. Davis, Mr. Tilden, C. H. Thompson and W. L. Drew. Of these, only Mr. Snively and Mr. Tilden are now living.

By July, 1919, they had raised the required \$10,000 and on July 14 the State Board of Control held its monthly meeting at Winter Haven and visited proposed sites for the new station. They selected an 84-acre tract near Lake Alfred,

of which 14½ acres were in grove. The Florida Fruitlands Company donated the land and was paid \$5,900 for the development of the grove, on which workers from the Main Station at Gainesville already had been conducting research.

From the time of receiving the property in July, 1919, until December, 1920, the Board of Control had the fertilizing, spraying, cultivating, and other grove work done by contract. Mr. John H. Jeffries was appointed Superintendent of the Citrus Experiment Station on October 1, 1920.

At this time 14½ acres of the total tract were in citrus; 4½ acres, planted on February 5, 1915, consisted of 150 Duncan grapefruit trees on rough lemon stock, 145 Tardiff orange trees on rough lemon and 30 Tardiffs on sour orange. The remaining 10 acres consisted of Lue Gim Gong and Pineapple orange trees, Marsh Seedless and Cluster grapefruit and Dancy tangerines, all 1 year old.

In order to equip the Citrus Station and enable it to fulfill the purpose for which it was established, the Board of Control requested of the 1921 Legislature a biennial appropriation of \$4,000 for the salary of the farm superintendent (for the 2 years), \$10,700 for experimental work and labor incidental thereto, and \$16,600 for perman-

ent improvements, such as a laboratory building, water supply, fencing, and additional acreage. The total for this request was \$31,300 for the two years. However, no appropriation was made, but the Citrus Station was mentioned and included in the total annual appropriation for the entire Florida Agricultural Experiment Station, which was \$30,000, or \$60,000 for the two years of the biennium. The Citrus Station had on hand, on June 30, 1921, a total balance of \$3,443.21; to this was added \$5,114.85 from the grand total of \$30,000, which made possible an expenditure for operations, improvements and buildings of \$8,458.06. The noteworthy additions from this were a "quarantine cage" for the safe isolation of newly inducted plants and trees for observation for insect and fungous pests; a well was drilled to 247 feet, when drilling ceased because the funds were exhausted, although the well would supply a fair amount of water for ordinary uses.

#### **Early Experimental Work**

That was the beginning of the Citrus Station. The experimental work then consisted of field work (1) to determine the effects of high and low potash fertilization on the quality of the fruit; (2) investigate conditions favorable to dieback. Variety tests were begun on several common varieties of citrus on sour orange, rough lemon and grapefruit stocks. Work was also begun, in cooperation with the Bureau of Plant Industry, USDA, on the development of a "progeny grove" to establish a source of supply of budwood of the standard commercial varieties.

In a year or so, and for several years cover crops of grasses and legumes were investigated. By 1927 appropriations were sufficient so that a 20 x 96-foot greenhouse and a laboratory building could be constructed (for \$5,000 and \$12,537, respectively).

In 1927 Mr. N. H. Norton, Lake Alfred, placed at the disposal of the Station some Temple orange trees on lemon root that had been inarched to Cleopatra mandarin. It was hoped that this would offset the influence of the rough lemon.

Mr. John Morely, Lake Alfred, permitted the Station to use a number of Temple orange trees on the MacKay estate. These were to be transferred from the rough lemon root to their own by the semi-

grinding process just above the union.

It was this year also that Messrs. Perrin and Thompson, Florence Villa, Florida, turned over to the Station a large Pink Shaddock tree for top-working in the Tangerine, King, Temple, Valencia orange, and Duncan grapefruit varieties.

By 1928 Mr. W. L. Thompson had arrived on the scene to begin investigations of insect control. The work of the Station assumed larger and larger proportions, and a resident plant pathologist was assigned to the staff, and in 1930 Dr. B. R. Fudge was appointed to investigate the chemical angles of fruit growing.

By 1932 a small power duster had been purchased and spraying and pruning trials were inaugurated for the control of melanose; also, a small shed was converted into a packing house. Die-back was ever present, scab was observed, and a rather general unthrifty condition of many groves persisted. By 1934 the investigational lines at the Station had been drawn rather specifically and included the fields of entomology, plant pathology, chemistry, soils, and horticulture.

#### **Modern Research Program**

Without going into any details, it is quite apparent that even in the early thirty's things were not altogether as they should be as far as yields and quality production of citrus was concerned. The Citrus Station had a mission to perform. Dieback and general unthriftness would not down. Copper had been used occasionally, here and there as a last resort, but not with understanding. However, someone at the Station tried a little copper with noticeable response. About that time two men, Harold Mowry and A. F. Camp, in another part of Florida obtained favorable response from bronzed tung trees by the application of zinc, and this was followed by similar favorable results from citrus trees which exhibited symptoms known then as frenching.

It was now 1935 and the Citrus Station was now 14 years old. Folks were looking to it, they were encouraging it, they were helping it. It was in this year and during this biennium that things began to happen and as a result, or in one or two instances in spite of them, the Station made a spurt in its growth and advancement. Some of these are:

On February 23, 1935, the Florida Agricultural Research Institute do-

nated to the Citrus Station a 40-acre tract of uncleared citrus land for the enlargement of field investigations in citrus research.

On December 11 and 12, 1935, the Station experienced a temperature of 23 degrees F with 14 hours below 32 degrees F.

This was the biennium (during the second year of it) that the feeding of citrus pulp, both fresh and dried, as a supplementary feed was begun, and the first lot of cattle was fed during the year. This almost put the Station into the cattle business.

The work with minor elements in citrus such as zinc, and others, was transferred from the Main to the Citrus Station.

Dr. Michael Peech reported for duty as Soils Chemist in June, 1936.

Dr. A. F. Camp of the Main Station was appointed Horticulturist in Charge, Citrus Station, December 15, 1935.

It was learned that copper and zinc were not the only deficiencies in the nutritional program, but that magnesium was a factor, and that the reaction of the soil would need to be kept between certain limits for best results. On the East coast, and probably elsewhere, boron deficiency was demonstrated. It was seen that the overcoming of one deficiency often accentuated another. Hence it was learned that imbalances occur, and all deficiencies must be considered together. It was found that some of these minor nutrient materials could be applied as a spray also and not only to the soil; that led to the integration of the spray program from the nutritional and insect and disease control standpoints.

Of necessity this is but a rough sketch—but when one looks around and observes these fine, thrifty groves one cannot but come to the conclusion that the experimental work over the years has paid dividends. To be sure, other agencies and institutions have been conducting research and share in credit which may have accrued from such investigational work. However, the research conducted at this station unquestionably has contributed in a major way toward the improvement of citrus production.

You are all familiar with the story—a very widespread use of a program which produces increased yields, better quality, a lessening of the alternation of high and low annual yields, thrifty groves, and a

(Continued on page 22)

# President O'Byrne's Address...

This is the first year that our regular annual meeting occurs in the fall instead of the spring. Each season has its own advantages. We ask that our members evaluate the merits and demerits of a fall meeting and give us their opinions. It is your Society, and we wish to meet at the time which suits you best.

At its last meeting, your Society called upon our State and Government agencies to finance and push with all possible speed the investigation of the Tristeza disease of citrus, which attacks most trees on sour orange stock.

Due to Dr. Camp's presentation of the problem in Texas and largely through the efforts of E. M. Goodwin, a large grower of Mission, Texas, the interests there raised \$20,000.00 to help finance the campaign. The State Plant Board of Florida allotted \$20,000.00 from its emergency fund for this purpose.

In June of 1946, your officers made a trip to Tallahassee and presented the matter to Governor Millard Caldwell and his Budget Commission. Due to the keen interest and support of Commissioner-of-Agriculture Nathan Mayo, and on his motion, the Budget Commission approved the transfer of \$20,000.00 from his General Inspection Fund to the State Plant Board to help finance the investigation.

Due to the exactness required of State Expenditures, we felt that we should have a revolving fund raised from the Citrus Industry for use in meeting promptly pay rolls and bills incurred in South America until such time as they could be put into proper shape for payment by the Comptroller. The leaders of the industry were acquainted with the situation and contributions solicited. From this source, we realized \$16,070.00. Officers were elected from the contributors and the funds placed at the disposal of Dr. A. F. Camp, Director of the Citrus Experiment Station. The investigation is progressing favorably and will be reported upon in detail by Dr. Camp. We feel that your Society has been of great service to the Industry in this particular matter.

During the past summer, your President made a trip to Louisiana,

## At Meeting Florida State Horticultural Society

Texas and Mexico. The growers in Louisiana sell practically all their fruit in New Orleans and so hardly affect us. There will be no great increase in plantings there.

The groves in Texas, on the whole, look fine, though there are

occasional bad spots due to lack of drainage. During recent years, their plantings have run much more heavily to oranges than formerly. A few years ago, they were planting mostly Hamlin and now they are planting heavily to Valencias. They are also continuing to plant Ruby Red grapefruit.

The soil in Texas is heavy and they can raise vegetables or cotton



## PORTRAIT OF A SUCCESSFUL GROWER

Management of soils is the vital factor in all growing. It is man's neglect, not Nature's, which limits quality and quantity of production. Good management conserves plant foods in the soil and restores those removed by crops and unavoidable leaching.

### X-CEL FERTILIZERS

The successful grower knows the requirements of his crop. He uses fertilizer to provide plant nutrient at the most profitable level to him. X-Cel fertilizers provide correct balance of required elements for conservation and restoration of soil productivity for your crop. X-Cel Fertilizers spell success.

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between the tree rows for the first three years, very largely defraying the cost of raising the grove.

Their production costs are lower than ours, due principally to their using less fertilizer than we do and also to the fact that they have been getting all the Mexican labor they wanted for twenty-five cents an hour plus a house. Mexicans able to drive a truck or tractor get slightly more. When you think that we pay sixty-five cents per hour for common labor, you can see where much of the difference in care costs lies. Since my return, Mexico has raised the price on this labor five cents per hour, so that eventually our care costs may tend to become equalized.

The Texas growers are doing no oil spraying, believing that they can get by with natural controls. I saw three groves rather badly infested with scale. The time may come when they will have to spray with oil. They control rust mites by dusting, mostly by airplanes.

Their main headache is their irrigation water. Mexico is cutting off some streams of good, fresh water and using it locally. The concentration of salts in the Rio Grande is increasing. During periods of drought, the salt concentration in the grove soils becomes high and the trees suffer until a heavy rain comes and flushes the soil. They had a very heavy rain just before I arrived. They are now planning a master drainage system, as well as a large irrigation system. They feel that this will permit them to reclaim some soil which is now unsuited for citrus.

Texas grove values went up at the same time ours did, but not quite as high. They dropped when ours did and none of them were bragging about the amount of money they made last year. Still and all, it looks to me as if they would be in the business for a long time to come.

There are many acres of young grove just planted. I did not learn if these plantings were real estate promotions or additional acreage planted by owners of bearing groves. My guess is that Texas has almost as many groves planted as the Rio Grande will irrigate. They have plans for the development of many more acres northwest of their present plantings. How they hope to get irrigation for these groves, is beyond me.

The groves in Mexico are likewise on heavy soil. They look

fine and were carrying ripe Valencia oranges the last of August. There was no drying or crystallization at the stem-ends in any of the fruit I purchased. The fruit was almost too sweet.

There are many groves that have just been planted. Fully fifty per cent of the citrus groves I saw in Mexico are below bearing age. Of the bearing groves observed, fully eighty per cent. are young groves and but twenty per cent. are of any considerable age.

The groves I saw were well cared for with modern machinery, International tractors and such equipment. The trees are on sour orange stock and are quite vigorous. Many groves were carrying a second bloom the last of August. I called on Government Agricultural officials, asking the extent of the new plantings. They could give me no figures, but said they were very large.

All of the Mexicans to whom I talked seemed to think they would have no fruit to export. I can not see how they can fail to have a surplus for with their present plantings. I was able to buy fresh orange juice everywhere I went in Mexico. I do not see how they can possibly absorb all the increased production that I saw in sight. Will the State Department want the United States to admit Mexican fruit in furtherance of the Good Neighbor Policy?

There is one thing that I would like to stress. From the time I reached "The Valley" in Texas, all the way through Mexico and back through "The Valley" again, I could get freshly squeezed orange juice at any time. It was offered and pushed. In a McAllen, Texas, hotel I was told that the only fruit or fruit juice they could give me was fresh orange juice in every town of throughout Mexico, I could get fresh range juice in every town of any size. It was not poured out of a can, nor had it been squeezed out a couple of hours before and grown flat and tasteless. It was often squeezed before your eyes.

It makes my face red when I recall tales told me winter after winter by visitors to my home town, who say they had to take canned orange juice or go without. We growers should look into the situation in our home towns to see to it that visitors asking for orange juice can always get freshly squeezed orange juice in our hotels, restaurants and drug stores. I feel that the growers have done a much better job in Texas and Mexico in

securing the cooperation of their hotels and drink shops. Even the Mexican radio commercials featured "naranjas."

Many years ago, Congressman Drane reported that Mr. Goodall, who manufactures all of the Palm Beach clothes and ties, asked him if citrus growing was a profitable industry. Congressman Drane, to Mr. Goodall's surprise, replied that citrus growing was not an industry. Mr. Goodall said, "Well, if citrus growing is not an industry, what is it?" Congressman Drane replied, "It is a disease. You either have it or you don't. Those who have it are to be pitied, for they go right on raising citrus, even when they may lose money doing it."

Subsequent to that conversation, the citrus industry has enjoyed some wonderful seasons, but last season brought us back to conditions that Congressman Drane had in mind. Almost everything that could happen to depress citrus prices occurred. Many of the depressing influences were beyond our control, but many of them are not. Where controls are available, we should apply them.

First, we should try to see to it that we have no such large carry-over of canned citrus juice as we had last fall. A large carry-over will always depress prices.

Second, we need to give more attention to quality and less to quantity. The market will always absorb more good oranges than it will poor oranges. We have been straining to produce as many boxes per tree as possible. Let us concentrate on producing good fruit.

Third, we need in some way to reduce the number of sales agencies offering Florida fruit for sale. The buyers constantly play one sales manager and his quotations against the other and beat prices down. Buyers in the North buy sparingly when the market is weak and act to break even further. A strong and rising market helps everyone. California demonstrates year after year the great advantage of fewer selling agencies.

Fourth, we as producers must realize that any decay that occurs in our fruit comes out of the grower's pocket. Many think that if they handle the fruit so that it reaches the jobber with little or no decay, the grower's interest is over. This is a mistake. If decay is heavy in the fruit before it is consumed, occurring in the hands of the wholesaler, retailer or housewife, it will result in many switching to

(Continued on page 22)

# Trends In Recent Grove Plantings In Florida...

In giving consideration to the trends in plantings of Florida citrus trees, it will perhaps be profitable to review briefly the world situation with regard to citrus production, in order to understand more completely the world setting into which these plantings are being made.

From 1920 to 1946, total annual citrus production in the world increased from about 130 million boxes to more than 340 million boxes. This was an average increase of approximately 8 million boxes per year for the 27-year period. The increase from 1920 to 1938 was both rapid and regular. The 3-year period following 1938 was characterized by a leveling off and some fluctuation in production, but a resumption of the upward trend occurred following 1941, leading to a peak production of almost 350 mil-

C. V. NOBLE  
Agricultural Economist,  
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Station

and  
MARVIN A. BROOKER

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Paper prepared for presentation  
at the 14th Annual Citrus Growers' Institute, Camp McQuarrie, Florida, August 27, 1947.

lion boxes in 1943. Production was slightly less in 1944 and 1945, but in 1946 it was almost back to the peak of 1943. (Chart 1)

World production of oranges and mandarins is about 4 times as great as of grapefruit, while grapefruit production is about double that of

lemons. The United States is the leading producer of oranges, and produces annually more than 90 percent of the World's grapefruit, as well as about one-half of the world's lemons.

As shown in Chart 2, production of oranges and mandarins in the world and in the United States increased rapidly during the past quarter-century. Since the United States produces a large proportion of the world's oranges, the lines on the chart showing world production and United States production are roughly parallel. The United States has never been highly dependent upon export markets for citrus, so production has continued to increase in this country in the face of upset world conditions. Prior to 1930, Spain occupied second place in the production of oranges, (Continued on page 15)

## SPEED SPRAYER CO. ORLANDO, FLORIDA ANNOUNCES

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## The Citrus Industry

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### WALKER MEMORIAL HOSPITAL

As a fitting memorial to the late Charles H. Walker, the citrus industry of Florida is now engaged in an active campaign to raise \$75,000 for the construction of a hospital between Avon Park and Frostproof, to be known as Walker Memorial Hospital.

Mr. Walker had proposed the hospital and had led the drive for funds. At the time of his death \$75,000 had been raised toward the \$150,000 required. It is the purpose of Mr. Walker's associates and friends to raise the additional \$75,000 needed within the industry.

Certainly no more fitting memorial to a great leader within the industry could be devised.

### CITRUS CANNERS ORGANIZE LEAGUE

A group of thirty Florida Citrus Canners have announced the organization of the Canners' League of Florida with headquarters in Lakeland.

The policy of the new organization is stated to be "the dissemination of factual information, production of high quality products, and fair profits to growers and canners alike."

Members in the League, it is stated, will continue their membership in the Florida Canners' Association, which is primarily concerned with the gathering of statistics.

### STORY RESIGNS

W. L. Story, prominent citrus grower of Winter Garden, has tendered his resignation as a member of the Florida Citrus Commission to become affiliated with a citrus shipping organization.

Mr. Story has been one of the most active and influential members of the Commission for a number of years and has been one of the leading advocates of higher tests for internal quality of fruit for out-of-state shipment. His term would have expired on May 31, 1948.

### WANT U. S. TO BUY

As a result of a meeting of citrus growers held in Fort Meade at the invitation of the

Fort Meade Chamber of Commerce, a campaign is now underway and petitions are being signed asking the Federal government to purchase surplus citrus, largely for shipment with food supplies to Europe, in an effort to bolster the sagging price on the home market.

It is stated that more than 5,000 signers have been secured on the petitions which are being taken on to Washington for submission to congress and the European relief agencies.

### "FAVORITE SON"

The suggestion put forward by The Polk County Democrat, published in the home town of Florida's junior United States Senator, that the people of Florida unite in presenting his name as Florida's "favorite son" for the democratic vice-presidential nomination, is meeting with hearty accord among the state's citrus growers.

A citrus grower himself, Senator Holland is looking after the interests of the growers of his state. As presiding officer of the United States Senate he would be in position to do even more. Citrus growers along with thousands of other Florida citizens would be pleased to see the Senator and the state thus honored.

### INDUSTRY MUST SOLVE OWN PROBLEMS

Any solution of the problems of the citrus industry to be permanent, must come from within the industry itself. Federal aid, or aid from any other outside source, may help for a time — but it will be merely temporary.

Growers and others vitally interested in the industry must get together as they have never gotten together before. It is their baby. Others may help tend it for a time, but in the long run the growers, shippers and other factors must do the laundry. To begin with, we must produce the highest quality fruit and see to it that none but that quality reaches the ultimate consumer. Having gone that far, we must organize, not as a neighborhood, nor a township, nor a county, but as an industry, casting aside our "rugged individualism" and working for the industry as a whole, for as the industry prospers so will its individual units.

With prices on the auction markets far below the cost of production, it is well that growers and all citrus interests should be looking for every possible means to stimulate prices on a temporary basis, but it is even more essential that steps should be taken by the growers themselves to put the industry on a permanently sound basis.

It's time to give the baby a bath!

Joining the voluntary contribution of food-stuffs to Europe, Florida citizens and institutions have contributed three car loads of citrus juices. That will be a welcome addition to the homes of hungry and suffering people of the devastated lands.

# Citrus At Its Best....

by

Paul L. Harding 1/

Oranges and grapefruit have become tremendously important in the diets of Americans. I give one fact as proof, if proof were needed: Between 1933 and 1943 our production of oranges increased from 47 million boxes to 150 million and of grapefruit from 14 million boxes to 55 million. Almost as obvious as the fact that we eat a lot of citrus fruits is the fact that they are bound to vary in quality. Let us examine, as a subject worth the attention of everyone who eats or grows oranges and grapefruit, what makes them good—specifically, the relation of maturity to quality in citrus fruits.

In the early years of citrus growing in the United States the decision as to the proper time for picking the fruit was made largely by the individual grower. The increase in production resulted in more business-like methods in handling the crop, so that eventually the industry cooperated in having State laws passed to effect more orderly marketing. Minimum standards were based on a break in the color of the rind, volume of juice, and the content of soluble solids and citric acid in the fruit, and the ratio between them.

The Department began in 1935 a comprehensive study of the factors that affect the quality of the juice of Florida oranges. Then we made similar studies of Florida grapefruit, tangerines, and Temple oranges. The results are applicable, in the strict sense, only to Florida fruit, but probably apply generally to the same varieties grown elsewhere, although we have not determined the extent to which they may thus apply in other States. The investigations included observations and measurements of physical characteristics and analyses of the chemical constituents of the principal varieties at definite intervals,

beginning with immature fruit and continuing until it had become fully mature and ripe.

Maturity refers to a stage of development of a fruit; ripening refers to the process by which a mature fruit becomes edible when held under suitable conditions. A mature fruit has attained the degree of development in which it will ripen with acceptable eating quality. Fruits with starchy reserves, like apples and pears, may be mature at harvesttime although many late varieties do not become ripe until sometime later, when they attain

fully their soft, juicy, aromatic qualities. In contrast, oranges and grapefruit owe their sweetness to natural sugars occurring as such; they contain practically no starch, and do not undergo such a marked change in composition as apples and pear after being picked.

Since the ripening processes occur only while the fruits are on the tree, it can readily be understood that they should not be harvested until they are mature and therefore ripe. Instead of increasing in palatability after harvest, these fruits tend to lose quality, the rate of this loss depending on the temperature at which they are held. The higher the temperature, the more rapid the deterioration.

Quality often is associated with appearance, firmness, freedom from blemishes, and thickness and texture of rind, but actually it is



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1/ Horticulturist, Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U. S. Department of Agriculture. Published in Yearbook of Agriculture, 1943-1947: 852-862. 1947.

determined by the texture of the flesh, juiciness, content of total solids (principally sugars), total acid, ratio of total solids to acid, aromatic constituents, and vitamin and mineral content. The age of the fruit is also important, because immature fruit is usually very acid or tart, whereas overripe fruit held on the tree too long may become insipid or develop off-flavors.

There are, of course, no hard and fast lines of demarcation between the successive stages through which fruit passes from the time it is first formed until it completes its growth and development. As fruit develops from an immature stage to full maturity, it becomes more and more pleasant to the taste, until it reaches perfection for any given variety. Thus the greatest amounts of sugars are found in fruits that are left on the trees until they reach maturity. Conversely, fruits picked before they have become mature neither contain their potential maximum of sugars, nor do they develop any more sugars after picking. While sugars increase, acidity decreases as the fruits become more mature, and the most desirable eating quality is reached when there is such a balanced blending between the total solids (principally sugars) and the total acid (citric) as to make the fruit most palatable.

Because most consumers probably consider sweetness the most essential character in oranges, the desired condition of balanced blending may be said to occur, for all practical purposes, when the fruit contains its maximum potential sugar content. The term "tree-ripened fruit" is often used. It means simply that the fruit has remained on the tree until it is ripe enough to be relished or has attained its potential maximum content of sugars. Any inference from the use of this term that the fruit can be ripened after harvest, even to a negligible degree, is incorrect. The color of the skin can be altered by artificial means; therefore, the color of the skin may have no bearing on its stage of maturity or ripeness. A wholly green fruit may be fully ripe under certain natural conditions, and a fully yellowed fruit may be immature under other conditions. It is the composition of the fruit and not its color that determines whether it is ripe or not. It is as ripe as it ever will be, when it is picked.

It is extremely important, therefore, to delay picking until the

fruit reaches a desirable stage of maturity if it is to satisfy consumers. It is correspondingly important also to base standards for judging maturity on criteria adequate for the purpose.

When the oranges and grapefruit are still immature, the rind and flesh have a greenish color; the juice vesicles appear like grains of rice and are not distended with juice as in the mature fruit. The walls of these juice cells are thick and conspicuous, the juice itself is greenish-yellow to yellow, lacks aroma, is acid to very tart, and has a raw, immature taste. As development progresses and the fruit matures, the greenish color in the rinds disappears and, in oranges, the fruit takes on its characteristic aroma and orange color, or, in the case of grapefruit, a tannish-yellow color. Progressive changes also occur within the fruit, the vesicle cell walls becoming thinner and the vesicles distended with juice.

The size and weight of fruit usually increase, but the greatest rate of increase is during the period of development before maturity. The volume of juice increases until the fruit is ripe. Then it remains rather constant until the fruit starts to dry out. When this happens the fruit loses somewhat in volume as well as in flavor.

We analyzed more than 13,000 individual fruits to determine how size affects the volume of juice, total solids, and total acid at different times before and during the harvesting period for the principal varieties of Florida oranges. We found that as the fruit ripens there is an increase in volume of juice and total solids and a decrease in

acidity regardless of the size of the fruit. The smaller fruits contained more solids and acid, and on the basis of the standard packed box (1-3½ bushels), a greater volume of juice. Thus the packs of smaller sizes weigh the most.

Because of the importance of the vitamin content of oranges and grapefruit in determining their dietary value, data regarding the ascorbic acid (vitamin C) content of the juice of exposed and shaded oranges are especially interesting. Fruits grown on the outside of the tree and well exposed to sunshine contain from 14 to 48 percent more ascorbic acid than those grown on the shaded inside branches. From outside to inside fruits, the concentration of ascorbic acid, when calculated as milligrams per milliliter of juice, gradually becomes less. The concentration of ascorbic acid in the juice, goes down as the fruit matures, but the total content per fruit remains about the same, the vitamin being dispersed in the increased amount of juice found in the more mature fruit. As the fruit becomes overmature and begins to dry out, its ascorbic acid content diminishes.

Oranges and grapefruit trees grown on rough-lemon rootstock usually become larger and come into bearing earlier, and consequently produce larger crops than those grown on sour-orange rootstock. Also, on rough-lemon rootstock the fruits average slightly larger and have a little coarser texture and thicker rinds, but contain somewhat less juice on the basis of weight; eating quality is not quite so high as that of fruits grown on sour-orange rootstock. The latter usually con-

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tain slightly higher amounts of total solids and total acid than those grown on rough lemon.

Since the "big freeze" of 1894-95 in Florida, most of the varieties of oranges have been budded or grafted on rootstocks particularly adapted to the soil of the locality. But there are still in Florida many old groves of seedling orange trees on their own roots, which were grown from the seeds of the sweet orange. The fruits from these are commonly referred to as Seedlings.

Generally the kind of rootstock used is the one best adapted to the type of the soil. Certain rootstocks are better suited to light sandy soils, others to heavier soils. For example, rough lemon is a very thrifty grower, has an extensive root system, and is used most frequently in soils in which the organic matter is low and the land is rolling. Sour-orange rootstock is used mostly in level soils having more than the average amount of organic matter.

More varieties are grown commercially in Florida than in any other citrus section. The harvest season normally extends from about October to June. Several varieties of oranges, Parson Brown, Hamlin, Conner, and so on, make up the bulk of the early crop; Seedlings, Pineapple, Jaffa, and Homosassa compose the midseason crop harvested in December, January, and February, and Valencia and Lue Gim Gong constitute the bulk of the late crop.

The varieties differ in quality, but the mature fruits—in their prime eating condition—are good generally in practically all the commercial varieties. Consumers often find that midseason oranges are better than the early oranges, and assume that it is because the same early oranges have been left on the tree longer. This is only partly true. The oranges marketed in midseason are generally of different varieties. Since they follow the early varieties instead of arriving at a market bare of Florida citrus, they are generally permitted to remain on the tree to maturity before harvesting. Thus they are more likely to attain excellent quality than the early varieties.

Some of the varieties that are recognized as having better-than-average quality are Seedlings, Pineapple, Temple, and Valencia. Among these the Temple is unique in containing aromatic qualities that give the juice a desirable bouquet and flavor.

Of the two leading grapefruit



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and are immediately available to crops.

Magnesium performs many essential functions in the profitable growth of plants. Farmers report earlier maturity, higher yields and improved quality of many different crops nourished with plant foods containing soluble magnesia.

Many fertilizer manufacturers are now supplying Sul-Po-Mag in mixed fertilizer and bagged for direct application. Interesting information about magnesium is contained in the booklet "Magnesium—An Essential Plant Food Element." Write for free copy.

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varieties, the Duncan rates slightly superior to the Marsh. The differences are not great, however, and the Marsh is more popular because it is practically seedless and is easier to prepare for eating.

Other factors that affect quality include kinds and amounts of fertilizers, drought, drainage, irrigation, insects, pests, diseases, and "freezes" which affect the vigor and physiology of both trees and fruit.

Commercial fertilizers are used in large quantities in Florida, principally because much of the grove land is a light sandy soil comparatively low in natural fertility and readily leached by rains. Under proper care and management, the trees consistently yield large crops and much work has been done to improve tree vigor and fruit quality. Noteworthy research has paved the way toward correcting deficiency diseases by supplementing the common fertilizers with minor elements. A. F. Camp, of the Citrus Experiment Station, Lake Alfred, Fla., and others have investigated the symptoms of citrus malnutrition and have demonstrated that mineral deficiencies can readily be corrected by the use of proper fertilizers. The use of copper, zinc, manganese, magnesium, and, to a lesser extent, iron, is now an integral part of commercial practice, and helps to improve the quality of the fruit.

If a drought occurs in early spring, blooming may be delayed until rains finally come. Droughts later in the season cause smaller fruits. In severe droughts so much moisture is withdrawn from the fruits as to make them soft. On the other hand, too much water in the soil may cause fruit to split.

In the final analysis, the taste of the consumer determines the demand for citrus fruits. The more

vitamins and juice the fruit contains, provided there is a proper blend of sugars and acid, the more valuable it is. Harvesting at the proper time and use of adequate standards of maturity will help to win

approval by placing the fruit on the market when it is most palatable, and has the highest nutritional value. That is to say, the fruits must be left on the trees long enough to mature properly.

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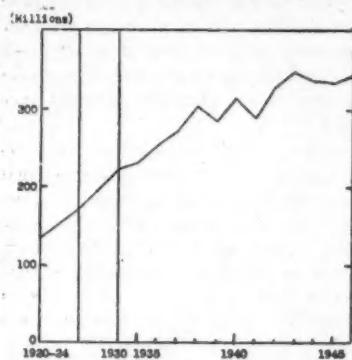
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**TRENDS IN RECENT GROVE PLANTINGS IN FLORIDA**  
 (Continued from page 9)

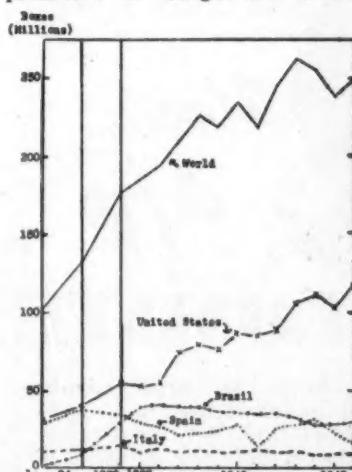
and was only slightly behind the United States. Production in that country has trended downward in recent years, however, perhaps due in part to the ravages of civil war and the unsettled condition of af-



Crop from Year of Bloom  
 Chart 1. CITRUS FRUIT: Trend in World Production, 1920-46.

fairs in that country, so that in 1946 production in Spain was less than half the average annual production in that country during the 20's.

Production of oranges in Brazil increased very rapidly during the decade from 1925 to 1935, near the end of which time Brazil replaced Spain as the second most important producer of oranges. Since 1935, production of oranges has trended



Crop from Year of Bloom  
 Chart 2. ORANGES AND MANDARINS: Trend in World Production, 1920-46.

slowly downward in Brazil. Italian production of oranges has varied little from year to year, and has changed little in total volume since 1920.

A study of world production of

grapefruit is little more than a study of grapefruit production within the United States. No important foreign producer has appeared on the scene to cut seriously into the commanding lead held by the United States in the production of grapefruit. During the 5-year period 1920-24, the United States produced 90 percent of the world's grapefruit, while during 1942-1946, 95 percent of the grapefruit was produced in this country.

During the 5-year period, 1928-29 to 1932-33, Florida produced about 42 percent of the citrus fruit

of the United States. During the 5-year period, 1941-42 to 1945-46, this percentage has increased to 46. During the latter period Florida produced 44 percent of the oranges and tangerines, and 50 percent of the grapefruit produced in the United States.

The upward trend of citrus production in Florida is brought out in Chart 3. During the past 19 seasons Florida's production of all citrus has ranged from 18,100,000 boxes in 1929-30 to 87,500,000 boxes in 1946-47. The upward trend for

(Continued on page 17)

## RACE - BILT Grove Heaters

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**SPILLAGE**—Race-Bilt Grove Heaters eliminate the danger of spillage and resulting tree damage.

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Constructed of ALUMINUM with ALUMINUM feed pipes these heaters are rust resistant, strong and lasting. Actual tests have proven that the very maximum consumption of oil required on the coldest nights is only one gallon per hour, while in less frigid weather the Race-Bilt heater will operate 12 hours on a single gallon of fuel.

Absolute heat control is assured by the simple turn of a valve, while the ease of lighting is conservatively 3 to 1 easier than any other heater on the market. The reserve supply of fuel will not burn and destroy the containers.

Burning from ground level with a 60 percent wider flame than any other heater we know of the Race-Bilt heater provides maximum efficiency.

See us for a demonstration—Orders will be built promptly after placement.

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# Florida Citrus Canners Form League...

A group of 30 Florida citrus canners have announced formation of the Canners League of Florida, a new organization uniting the members in a policy of "disseminating factual information, high quality products, and fair profits to growers and canners alike."

C. Howard Sweatt of the Besco Products Co., Orlando, was elected first president of the League, with C. Rouss May of the Hills Brothers Co., Bartow; Logan Bloodworth of the Cherokee Products Co., Ft. Pierce, and J. Adams Bruce, of Bruce's Juices, Tampa, as vice presidents, and Charles McCartney of Stokely Foods, Inc., Tampa, treasurer.

The canners named Homer Hooks, of Lakeland, as secretary-manager. Hooks will maintain League Headquarters in rooms 3 and 5 of the Cole Building, 306 S. Kentucky Ave., Lakeland.

Executive committee of the new organization includes two former presidents of the National Canners Association, C. D. Lindsey, president of the Lakeland Highlands Canning Co., and Walter L. Graefe, president of the Pomona Products Co., Clermont.

Others on the committee are M. C. Peters of the Florida-Gold Citrus Corporation, Lake Alfred, and B. C. Skinner, of Juice Industries, Inc., Dunedin.

Members of the League last season produced approximately half the total season's output for the entire state.

Outlining general policies of the League, Sweatt said:

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"Our position in issues that may arise in the industry will be guided by three principles:

1. That the honest facts about the matter under discussion be made known as they affect growers, canners, buyers, and ultimate consumers.

2. That we will strive always for top quality canned citrus.

3. That the growers — and we mean all of them, large and small alike — should certainly get a fair return for their fruit."

Sweatt declared that "inaccurate and misleading information has been used too often. The result has been confusion, loss of confidence by both growers and buyers, at a cost of millions to the industry — and the growers have been the biggest losers."

"As for prices," he continued, "we

believe in paying the grower a fair price for his fruit and receiving in turn a fair price for our products. It is ridiculous for Florida citrus to be sold at less than cost of production when the saturation point hasn't been even touched for highest quality canned fruits.

"This League will go all-out for production of high quality canned citrus. We will aim always at raising canned juice quality so that we can offer the consumer the best-tasting, most nutritious product possible."

Sweatt said he felt it was the consensus within the League that the members would continue as members of the Florida Canners Association, which he described as "essentially a statistics gathering agency which has performed efficiently a valuable service to the Florida citrus industry through the years."

He explained that the League members are "mostly independent canners who buy practically all of their fruit from the growers, as contrasted to canners who operate as adjuncts of grower cooperatives or who own most of their fruit sources."

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## TRENDS IN RECENT GROVE

## PLANTINGS IN FLORIDA

(Continued from page 15)

oranges has been more rapid than for grapefruit, particularly since 1941-42. The production of tangerines fluctuates little from year to year, but has increased steadily from less than a million boxes in 1929-30 to almost 5 million boxes in 1946-47.

The volume of plantings of citrus trees being made currently assumes



Chart 3. FLORIDA CITRUS: Annual Production, 1928-29 to Date.

great importance when viewed in the light of the production trends which have been pointed out, since large numbers of new trees would be the basis for a continuation of these upward trends several years hence. Increases in production during the years immediately ahead are already possible, based upon

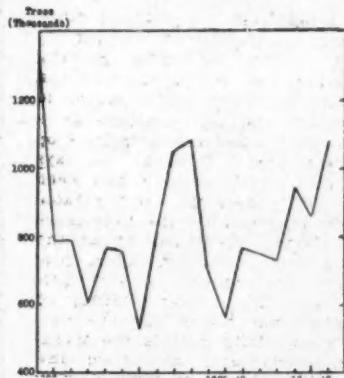


Chart 4. Movement of All Citrus Trees from Nurseries to Florida Groves, 1928-29 to 1945-46.

plantings which have been made during the last few years.

Perhaps the best information we have as to the numbers of trees being planted, and therefore the best basis for a study of the trends of these plantings, are the records

(Continued on page 20)

## TRUISMS of a Citrus Grower

*It takes more than sunshine and rain to grow good fruit!*

Mother Nature favored Florida for citrus production. And the big volume of fruit now being produced emphasizes every grower's need to concentrate on QUALITY. Where there's a large supply of anything buyers choose the best.

So it takes more than Florida sunshine and rain to produce fruit that gets first call in the markets.

Good fruit is a "down to the roots" proposition — because that's where the crop starts, through the plant foods you supply your trees.

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## Reports Of Our Field Men . . .

### WEST CENTRAL FLORIDA E. A. (Mac) McCartney

We are now in the middle of our fall application of fertilizer and this operation will not be concluded until well up into December. Most growers have an economy program in their minds and while they may not use as much tonnage of fertilizer as they have during the past few years, they certainly are not cutting the quality of the mixture they use and we feel that this is a sound program. Groves in this section continue to look good and since we have had a few cool nights the fruit on the trees is beginning to take on that rich golden color, which means that we are now getting some fruit that is really good to eat. The vegetable crops in this section are good; various produce is now moving to market in a steady flow at prices satisfactory to the grower.

### NORTH CENTRAL FLORIDA V. E. (Val) Bourland

While we were a little later opening our packing plants this fall, we now have most of them going at full force along with the canning plants packing grapefruit, oranges and tangerines. I am glad to report that we have fine quality crop of fruit that should be well received in the north by the consuming public. We are just getting under way with our fall application of fertilizer and this will be continued up into January. Vegetable crops were set back to some extent early in the fall season but are now in excellent condition and without any unusually bad weather conditions we are going to have excellent yields of all varieties of crops. Cukes, pepper, cabbage and beans are now being moved to market.

### POLK COUNTY J. M. (Jim) Sample

We are moving considerable volume of fruit from this territory both through the packing houses

and canning plants and the early bloom fruit that is now being moved should be very desirable by the consuming public. A few real cool nights would do a great deal to aid in both quality and color appearance of the fruit. Our fall application of fertilizer is well under way and will be completed in the next several weeks. Tangerines have started moving to market and should be well received as we have a number of crops that are well colored and of good size. We have been having plenty of rain throughout the territory — in fact, this is the first fall in some period of years where it hasn't been necessary to do some irrigating in the area. Rust mites have been active in recent weeks, but growers have been able to keep them under control. There has been quite a bit of late oil spraying carried on this fall in an effort to get scale insects under complete control.

### SOUTH POLK, HIGHLANDS & HARDEE COUNTIES R. L. (Smokie) Padgett

Our fall application of fertilizer has been somewhat later this fall than it is as a general rule, but we are now in the middle of the application that will carry over into December. In spite of the late application trees are holding up in excellent condition with very little evidence of hunger. All varieties of fruit are being moved to market both through the packing house and canning plants, but there is a larger percentage of grapefruit moving at this time than any other variety. We have been having considerable difficulty in getting some of the early varieties of oranges to pass the required maturity tests, and of course to some degree this is responsible for the slower movement of oranges.

### HILLSBOROUGH & PINELLAS COUNTIES C. S. (Charlie) Little

As a general rule we are moving a heavy volume of fruit at this time of the year but this

one is an exception and to date we have moved only a fraction of what we normally do. However, in the past few days he have had a number of cool nights that has done a great deal for the color of the fruit and many packers are of the opinion that from now on fruit will carry to the market in much better condition. We had plenty of water in this section following the heavy rains early in the fall but most of this has drained off without too much damage to trees. We have never seen rust mite as hard to control as they have been this summer and fall, and we are still having a fight to keep them under control. Scale insects have also been bad but most growers now have this pest under the best control that we have seen in the past two or three years. Our growers have gone forward with their application of fertilizer, realizing that it is necessary if they are to keep their trees in the best of condition and produce maximum crops of quality fruit.

### SOUTHWEST FLORIDA Eaves Allison

Things have not changed much here since last month's report in this column. Favorable growing weather has prevailed, with an occasional rain doing much to maintain the soil moisture at a level best suited to maximum crop growth. Aside from a few days of cool weather, there has been nothing to check the late vegetable crops planted after the hurricanes and from present indications the yields from tomatoes, cukes, pole beans, etc., should be very profitable to the grower. Cutting of gladiola has begun and the supply grows daily, both in the Manatee county area and from the acreage further south. Citrus growers have been applying their fall fertilizer for some time now, with a great deal of attention being given to selecting the proper mixture for the most profitable return. In this connection these growers most interested in economy of operation and maximum yields have in no wise reduced their secondary plant foods below the same maintenance point.

## ADVERTISEMENT — LYONS FERTILIZER COMPANY



Frank H. Scruggs, market news specialist, indicates that Florida will produce about 150 million boxes of citrus fruit in 1950 . . . 'n that's a heap of fruit in anybody's language . . . we're goin' to copy here what he says about the situation:

"For the 1946-47 season it looked like 102,000,-000 boxes or more. Along came a hurricane in 1946 and a freeze in February 1947 and we ended up with 83,100,000 boxes used and another 4,600,-000 boxes abandoned because of poor markets.

In August 1947 it looked like a crop of 90 to 95 million boxes and we were hit by a hurricane in South Florida. We have the potentials for a 150,000,000 box crop by 1950, but is nature going to let the crop go that high? We do have good citrus weather sometimes for two years in a row and it is conceivable that our crop could jump to 125,-000,000 or more in two years. So far nature in its destruction has been good to the citrus industry as a whole and saved them from some terrific marketing problems. Our 1946-47 crop is now just about average size and manageable. The price structure over this nation is still unsettled, but marketing may not be any more of a problem than for the season just passed.

"In the 1934-35 season Florida produced 32,835,854 boxes of citrus fruit with a gross value of \$42,797,752, and in the season of 1946-47 we produced 83,100,000 boxes of citrus fruit with a value of \$146,-565,580. In 1934-35 we produced 48,411 carloads of all vegetables with a gross value of \$30,134,054 while in the season of 1946-47 we produced 58,049 carloads of all vegetables with a gross value of \$91,-618,000."

For more'n 25 years the Lyons Fertilizer Company has been contributin' to the agricultural program of Florida and now looks forward to givin' even greater service in the future in helpin' show how greater crops of even higher quality can be produced . . . by operatin' their own experimental work and through constant contact with research agencies we anticipate the growers' needs and to supply just the right kind of fertilizer for the sort of soil and the kind of crops each individual customer wants to produce.

The Lyons Fertilizer Company's field representative and local agent in your territory has been chosen with care for his particular job. Both the representative and the dealer are aggressive. They want to be helpful to you and will gladly provide friendly assistance.

**Uncle Bill**

**TRENDS IN RECENT GROVE  
PLANTINGS IN FLORIDA**

(Continued from page 17)

maintained by the Florida State Plant Board. All commercial citrus nursery stock moved from Florida nurseries to destinations must be reported to the State Plant Board.

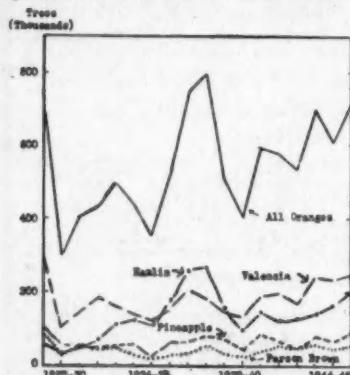


Chart 5. Movement of Orange Trees from Nurseries to Florida Groves, 1928-29 to 1945-46.

There is no record as to the proportion of these trees that are for resets and non-commercial plantings. On the other hand, grove owners producing their own nursery stock are not required to report to the Plant Board if their trees are not transported over the public highways from nursery to grove. Thus, although the State Plant Board records do not give the complete picture, the incompleteness is at

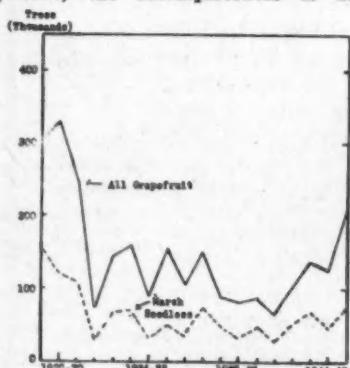


Chart 6. Movement of Grapefruit Trees from Nurseries to Florida Groves, 1928-29 to 1945-46.

least partially offset by other factors, which tend to make them the best known source of information on Florida plantings.

In Chart 4 is shown the movement of all citrus trees from nurseries to Florida destinations from July 1928 through June 1946. We do not have at this time a compilation of the figures for the year 1946-47. Plantings were extremely heavy during the 1928-29 season, and

have not again attained the volume reached during that season. There were wide fluctuations in the plantings from year to year during the decade 1930-1940, with a low of a little more than half a million trees in 1934-35. During the next two years volume of plantings increased to a little over a million trees each year, but again fell to less than 600 thousand trees in 1939-40. Since the beginning of the late war, however, plantings have trended sharply upward, and were as great during 1945-46 as during any other single year since 1928-29.

During the 5-year period July 1941-June 1946, Florida citrus plantings averaged about 875 thousand trees per year, which would be sufficient to plant some 13 to 14 thousand acres of groves per year. It is interesting to note that during this same 5-year period, plantings of new citrus groves other than lemons in California averaged a little over 1100 acres per year. During the war years Florida made new plantings at more than 10 times the rate of California.

This gives an indication of the volume of new groves that may be expected to come into bearing within the next few years. In addition to these new bearing groves, volume of fruit could increase greatly from the older plantings until these trees reach their age of maximum production. Present estimates are that Florida has for the 1947-48 sea-

son, 411.5 thousand acres of bearing groves and an additional 60.6 thousand acres of non-bearing citrus. Of the present bearing acreages, estimates indicate that 68 percent are oranges, 24 percent grapefruit, and the remaining 8 percent are tangerines and other kinds of citrus. During the 1945-46 season 66 percent of the new plantings were oranges, 21 percent grapefruit,

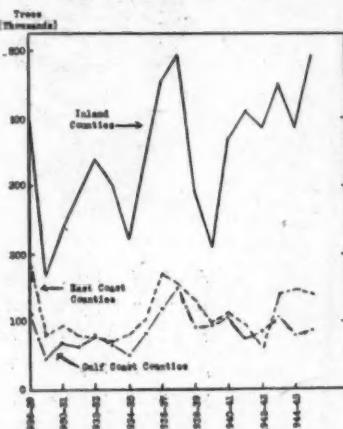


Chart 7. ORANGES: Movement from Nurseries to Three Divisions of the State.

and 13 percent were of tangerines and other kinds of citrus.

But what are the leading varieties of citrus going into these plantings? In chart 5 the leading varieties of oranges are plotted for the 18-year period, July 1928-June 1946. Valencias have been



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the leading variety with the exception of a 4-year period between 1935 and 1940 when Hamlin's were in the lead. These varieties are followed by Pineapples and Parson Browns, which have been planted consistently but in much smaller numbers throughout the period. These 4 varieties of oranges constituted 82 percent of the total

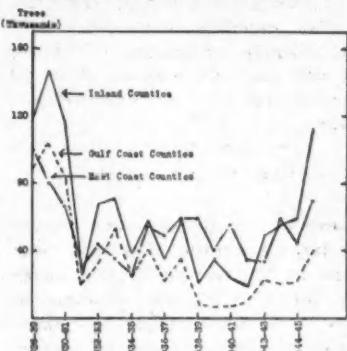


Chart 8. GRAPEFRUIT: Movement from Nurseries to Three Divisions of the State.

orange tree plantings during the 1945-46 season, but there were 23 other named varieties moved to Florida destinations, of which Lue Gim Gong and Jaffa were most important.

The trend of grapefruit movement is shown in Chart 6. Marsh Seedless is the leading variety, and has constituted from one-third to one-half of total grapefruit plantings during each of the 18 years plotted. During the 1945-46 season Marsh Seedless made up one-third of total grapefruit plantings, while Thompson was only a short distance behind with 27 percent. Henniger Ruby was in strong third position with 20 percent of total grapefruit plantings, while Duncan was a poor fourth with 10 percent. In addition to these 4 varieties, there were 11 other named

varieties recorded.

Very few tangerine trees have been planted during recent years. In 1931-32 plantings of Temples exceeded tangerines for the first time and the bulk of plantings of the mandarin group of oranges has been Temples since that time. During both 1944-45 and 1945-46, Temples constituted 80 percent of the plantings of the mandarin group.

Plantings of lemons and limes continue to be negligible, with about 10 times as many lime trees being planted as lemons.

(Concluded Next Month)

## More Than Ever Before High Quality Fruit Is Desirable . . .

The consuming public has reached a point where they now demand good eating fruit, fruit that is full of juice and teeming with flavor.

And as every grower knows the only effective method of producing such fruit is through the proper feeding of the trees.

For many years hundreds of the most successful growers throughout the citrus belt have found that FFF Brands of Fertilizers provide their trees with the sort of nourishment which makes strong, healthy trees and good crops of fine quality fruit.

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Our Field Men are always glad to serve you—  
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**Telephones need roots to grow on**

A telephone's "roots" are the many pieces of equipment necessary for connection and transmission of voices. Expansion of service is impossible without these "roots"—cable, wire, switchboards, etc. Until we can obtain this needed equipment, we can only provide such new service as our present limited facilities can handle.

**PENINSULAR TELEPHONE CO.**

## Scientists to Study Nematode Control

Measures to control plant nematodes, the tiny parasites now known to cause heavy crop losses mostly through attack on the roots of plants, will be studied in a project set up by the U. S. Department of Agriculture under the Research and Marketing Act of 1946.

The research will be made in the South and Southwest where the pests are a more serious limiting factor than in other areas of the country because the warmer weather and the long growing season permit them to increase rapidly and to feed longer on the plants.

Nematologists of the Bureau of Plant Industry, Soils, and Agricultural Engineering and cooperating State experiment stations will make the investigations. They will seek:

(1) More accurate information on the types of nematodes which attack crops in the South and Southwest.

(2) To develop control measures that will effectively aid in the production of crops such as alfalfa, tobacco, lespediza, sweet potatoes, peanuts, cotton, citrus, and truck and other crops now limited by these parasites.

(3) To develop controls that will permit growing certain crops, such as papayas, figs, and pineapples, now restricted by nematodes.

(4) Facts on the relation of nematode diseases to cover crops and to weeds and the relation of fertilizer practices to nematode control measures.

### CITRUS EXPERIMENT STATION CELEBRATES COMPLETION OF EXPANSION PROGRAM

(Continued from page 6)

considerable increase in the tolerance to low temperatures. A program which is developed through research and worked out annually for the growers cooperatively by the Citrus Commission, the Citrus Station and other agencies.

### PRESIDENT'S ADDRESS

(Continued from page 8)

fruit grown in dryer regions, where decay is not so heavy.

Florida fruit has rightly been called "Balls of Juice." Such fruit will decay unless it is very carefully handled. During the war, most of our houses switched from clipping fruit to pulling it. The pickers prefer to pull fruit and some will tell you there is less decay in pulled fruit than when it is clipped. This may be true when pulled by an expert, with care, but when the ordinary picker pulls fruit, he is interested in speed and not in care. A picker in a hurry should always use clippers.

Last year, a grower was checking the picking of a crop in another grower's grove. The fruit had been purchased "on the tree" by an independent buyer. As soon as the boss left, the pickers put up their clippers and started to pull the fruit.

The checker protested, without results. He made the mistake of thinking it was none of his business as it was not his fruit and had been bought "on the tree." Soon the pickers were picking the fruit and dropping it to the ground, then picking it up in sacks and emptying it into the field boxes.

No wonder that this fruit decayed badly before it was consumed. Much of the decay showed up on the sides of the fruit. Such handling of fruit hurts every grower in the State, for no matter how carefully your house handles your fruit, it is bound to be penalized considerably because of rough handling by other houses.

We growers should see to it that we grow the highest quality fruit that our groves are capable of producing and that all fruit is

handled like eggs from the tree to the car and then on to market. Any decay which occurs before that fruit is consumed, means money out of our pockets. Believe it or not!

We are going to see higher and higher production in the years to come. Competition will be more and more keen. It is up to us to see that Florida fruit is produced right, handled carefully and sold to the best possible advantage. Otherwise, we will have the disease of citrus growing and be in very hopeless shape.

### LARGE COVER ACREAGE

Levy county farmers have planted the largest acreage of winter cover crops in the history of the county this season. They are counting on these crops to increase the organic matter of their soil and to prevent erosion, according to County Agent T. D. Rickenbaker.

### Classified Ads

**BOOKING ORDERS** for citrus trees for winter planting. Have best commercial varieties on various rootstocks. Order now. Ward's Nursery, Avon Park, (Highlands), Florida.

**PEACH TREES. IMPROVED JEWEL** Variety. Accepting reservations for January—February delivery. Place reservations early to insure delivery.

Clay Hill Nurseries Co.  
Box 2880, Tampa, Fla.

**CITRUS TREES** for fall and spring delivery. All varieties. F. Gould Garcia, Box 843, Lakeland, Florida.

**CITRUS TREES. USUAL VARIETIES** and Rootstocks. Accepting reservations for Fall 1947 and Spring 1948 delivery.

Clay Hill Nurseries Co.  
Box 2880, Tampa, Fla.

**FANCY VARIETIES OF CITRUS** trees for sale. Very choice fruits. Something different and good. Crimson grapefruit, Early Seedless grapefruit, Navel-Grapefruit, Nicholson Summer Orange (June thru August), and new varieties of Navel Oranges, delicious and juicy. There is big money in fancy varieties. Royal Purple Citrus Research Nursery, 1224 Palmer St., Orlando, Florida.

**CLEOPATRA MANDARIN**, Seed and Seedlings, also contracting for budded trees on Cleopatra. **RUBY RED** patented grapefruit and all standard varieties on lemon and sour. Grand Island Nurseries, Eustis, Florida.



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